

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 26

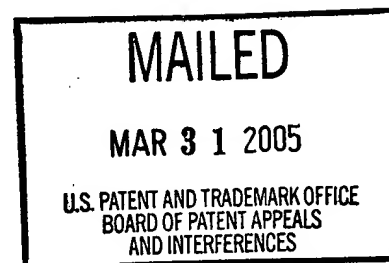
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PAUL L. HICKMAN

Appeal No. 2004-0263
Application 08/810,620¹

ON BRIEF



Before BARRETT, RUGGIERO, and GROSS, Administrative Patent Judges.

BARRETT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the final rejection of claims 1-18, 21, and 22.

We affirm-in-part.

¹ Application for patent filed February 28, 1997, entitled "Method and Apparatus for Computing Over a Wide Area Network," which is a continuation-in-part of Application 08/799,787, filed February 12, 1997, now abandoned, which is based on and claims priority under 35 U.S.C. § 119(e)(1) from U.S. Provisional Application 60/012,905, filed March 6, 1996.

BACKGROUND

The invention relates to a method and system for allowing the functionality of a host computer to be made accessible to a client computer over a network. In particular, the invention permits a computer system to be run remotely as a "virtual machine" with image information generated by the host computer being viewed in a window of the client computer.

Claim 1 is reproduced below.

1. A cluster computer system comprising:

a plurality of network accessible computers each having a unique address with respect to a network, each including a central processing unit and non-volatile memory, where each of said network accessible computers is coupled to said network, where said network accessible computers implement host computer programs which permit the network accessible computers to operate as host computers for client computers coupled to said network, where a client computer controls the functionality of a host computer after being downloaded from said host computer a client program to run on said client computer that includes the ability to communicate with said host computer program, whereby an input device of said client computer can be used to generate inputs to said host computer, and such that image information generated by said host computer can be viewed in a window of said client computer; and

a cluster administration computer coupled to said network to monitor the operation of said network accessible computers.

THE REFERENCES

The examiner relies on the following references:

Pitkin et al. (Pitkin)	5,341,477	August 23, 1994
Frese, II et al. (Frese)	5,909,545	June 1, 1999
		(filed January 19, 1996)
Adams et al. (Adams)	5,913,920	June 22, 1999
		(filed June 27, 1996)

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Clark and McMillin (Clark), DAWGS - A Distributed Compute Server Utilizing Idle Workstations, Proc. of The Fifth Distributed Memory Computing Conference, Volume II, April 8-12, 1990, pages 732-741.

THE REJECTIONS

Claims 1-14, 18, 21, and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Adams, Frese, and Pitkin.

Claims 15-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Adams, Frese, and Pitkin, further in view of Clark.

We refer to the final rejection (Paper No. 19) (pages referred to as "FR__") and the examiner's answer (Paper No. 24) (pages referred to as "EA__") for a statement of the examiner's rejection, and to the brief (Paper No. 23) (pages referred to as "Br__") for a statement of appellant's arguments thereagainst. This opinion assumes familiarity with the rejection and the references.

OPINION

Grouping of claims

Appellant groups the claims as follows for the first rejection (Br3):

- Group 1: claims 1-7, 9, 12, and 21
- Group 2: claim 8
- Group 3: claims 10 and 11
- Group 4: claims 13 and 18
- Group 5: claim 14
- Group 6: claim 22

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Appellant groups the claims as follows for the second rejection (Br4):

Group 1: claim 15
Group 2: claims 16 and 17

Claims 17 and 18 are independent claims

Claims 17 and 18 are directed to a computer program product having program instructions for implementing the methods of claims 16 and 13, respectively. There is some question whether claims of this form are true dependent claims or whether they are, in fact, independent claims which incorporate by reference the limitations of the independent claims they refer to. See Ex parte Moelands, 3 USPQ2d 1474, 1477 (Bd. Pat. App. & Int. 1987) (Examiner-in-Chief Lovell, dissenting in part); Ex parte Porter, 25 USPQ2d 1144, 1147 (Bd. Pat. App. & Int. 1992); In re Warmerdam, 33 F.3d 1354, 1358, 31 USPQ2d 1754, 1757 (Fed. Cir. 1994) (claim 5). In our opinion, the claims are independent claims because they are in a different statutory class of subject matter (manufacture rather than method). Nevertheless, this only affects how the claims should be treated for fee collection purposes, which is not a matter within the Board's jurisdiction.

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Claims 1-14, 18, 21, and 22 -- Adams, Frese, and Pitkin

Group 1: claims 1-7, 9, 12, and 21

Claim 1 is selected as representative.

Initially, we interpret claim 1. In the limitation "where a client computer controls the functionality of a host computer after being downloaded from said host computer a client program to run on said client computer that includes the ability to communicate with said host computer program," the statement "after being downloaded from said host computer a client program to run on said client computer that includes the ability to communicate with said host computer program" is considered to be a product by process limitation that is not entitled to patentable weight. That is, the limitation "where a client computer controls the functionality of a host computer" is a complete statement of the function of the client computer. The method by which the client program is stored on the client computer is an orphan process limitation, not a statement of function for any structure. A client computer with remote control software is the same whether the remote control program is downloaded or is loaded at the client computer. Thus, the limitation "after being downloaded from said host computer a client program to run on said client computer that includes the ability to communicate with said host computer program" is not

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entitled to patentable weight, as claimed. Nevertheless, the limitation is addressed because it was addressed by the examiner.

Appellant argues that Adams teaches away from applying his collaborative working environment processes to an Internet or similar wide area network since it worsens the problem he is trying to solve (Br7).

Claim 1 only recites a network, not the Internet. Adams teaches that the workstations are connected to a network (col. 5, lines 45-51). Although some of the dependent claims recite a TCP/IP protocol network, appellant has chosen to have these claims stand or fall together with claim 1. In any case, we also disagree that Adams teaches away from using the Internet. Adams describes one approach of a client terminal retrieving a page of information from a remote server on the World Wide Web (Internet). The client may request the server to provide header information first for the image, before the image itself, so that the client can determine the particular region of the screen in which to locate the image, and the client can then write the text for the page to the screen, leaving a box or area for the image to be filled in subsequently once the image data itself has been retrieved (col. 1, lines 49-62). Adams states that this approach is fundamentally driven by the client (receiving) terminal and is not directly applicable to a collaborative working environment (col. 1, lines 62-65). A collaborative working environment is

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where an application runs on two machines, with updates made to the application at either machine being transmitted to and mirrored on the other machine (col. 1, lines 21-23). Adams describes that the particular technique on the Internet of sending image header information, text, and then the image is not directly applicable to a collaborative environment--it does not say that the technique is not applicable to a remote control (as opposed to collaborative) environment as claimed or teach away from using the Internet as one kind of network.

Appellant argues (Br7) that Adams does not teach "a plurality of network accessible computers each having a unique address." The examiner states that "it is apparent from the context of Adams environment that there are plural other 'remote' workstations and plural other 'local' workstations on the network which can enaged [sic, engage] in remote control sessions with each other" (EA7).

It would have been better for the examiner to explain his reasoning in the final rejection rather than the answer. We agree that one skilled in the art would appreciate that there is more than one pair of local/remote workstations in Adams. However, there is no disclosure or suggestion that the "plurality of network accessible computers" is coordinated or controlled by a cluster administration computer. We refer to the discussion of

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Frese, infra, for a discussion of a plurality of computers and a cluster administration computer.

Appellant argues (Br7) that Adams does not teach "a cluster administration computer." The examiner relies on Pitkin (EA7).

We address the cluster administration computer in discussing Frese and Pitkin.

Appellant notes that Frese has a filing date of January 19, 1996, while appellant claims dual priorities of February 16, 1996, and March 6, 1996, and reserves the right to swear behind Frese (Br7-8).

We do not find the priority for February 16, 1996. This application is said to be a continuation-in-part of Application 08/799,787, filed February 12, 1997, now abandoned, which is based on and claims priority under 35 U.S.C. § 119(e)(1) from U.S. Provisional Application 60/012,905, filed March 6, 1996. Frese is prior art since appellant has not sworn behind it.

Appellant argues that Frese permits a user at a client computer to test and evaluate customized application programs, but "[t]he user is not given full control over the computer hosting the application program" (Br8) and "[s]ince Frese is directed to controlling an evaluation copy of an application program, it is not designed [to] control the functionality of a host computer, but merely to operate a specifically designed evaluation application program on a remote computer" (Br8).

The examiner considers this argument unpersuasive because Adams is relied on for remote control of a session (EA8).

We agree with the examiner that Adams teaches "a remote control facility, whereby one of the computer workstations in FIG. 2 can be used to remotely operate or control the other workstation" (col. 6, lines 18-21). Adams is apparently chosen as the primary reference because it expressly discloses "that image information generated by said host computer can be viewed in a window of said client computer" (claim 1). Claim 1 recites that "a client computer controls the functionality of a host computer." This limitation is broad and does not require controlling every aspect of the functionality of the host computer. Frese's control of an application program on a host computer satisfies this limitation because it controls the functionality of the computer for that program.

Appellant argues that "[f]urthermore, Frese, like Adams, does not teach a plurality of network accessible computers, nor a cluster administration computer to monitor the plurality of network accessible computer[s]" (Br8).

We find that Frese teaches a plurality of network accessible computers, each one of which is capable of being a host computer for a client computer, and that the remote access server (RAS) acts as a cluster administration computer. Frese discloses that the RAS 20 is used to launch an application program in response

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to a request from user system 16 (col. 6, lines 46-49). Frese discloses (col. 8, lines 16-25):

The application programs which RAS 20 launches may be launched on the same computer implementing RAS 20 or RAS 20 may be coupled to a plurality of computers which may be used to launch one or more application programs. Use of a plurality of computers for launching application programs 22 is preferred as each computer may implement a different operating system environment so that a user may select an application program which executes under an operating system similar to the one on the user's system.

Since the RAS controls the launching of application programs, it is considered "to monitor the operation of said network accessible computers" as broadly claimed. In addition, Pitkin is also applied to teach a cluster administration computer.

Appellant argues that it is improper to combine the teachings of Adams and Frese because they mutually teach away from each other (Br8). It is argued that Adams teaches away from using Internet protocols, browsers, and Applets, to permit a local computer to take over the control of a remote computer, and Frese specifically discloses a methodology which only allows limited control of a specified application program on a remote computer, rather than general control over the remote computer itself (Br8). It is argued that it would defeat the purpose of Frese to allow a user to have general control over the functionality because the user would have no need to buy the application software (Br8).

As previously discussed, claim 1 does not recite the Internet, so arguments about teaching away from using Internet protocols are not commensurate in scope with claim 1. In addition, we have found that Adams does not teach away from using the Internet--Adams only says that the particular technique on the Internet of sending image header information, text, and then the image is not directly applicable to a collaborative environment, not that the Internet cannot be used, and not that the technique could not be used for remote control on the Internet. There is nothing in Adams that would preclude remote control operation on the Internet. Also, as previously discussed, the limitation "where a client computer controls the functionality of a host computer" is taught by Adams and, in addition, is so broad that it is met by Frese's control of the functionality of the host computer when running the application. Adams teaches that information can be downloaded from a remote server to a client and Frese teaches that it was known to download remote control software to a client. These teachings motivate the combination. Adams also teaches displaying image information generated on a host computer in a window of the client computer. Since Frese discloses using a Windows or Macintosh operating system (col. 7, lines 57-60), all information is inherently displayed in a window, and Frese would inherently display the application running on a host computer in a window on

the client computer. There is more than sufficient motivation to combine the teachings of Adams and Frese.

Appellant argues that Pitkin does not cure the deficiencies of Adams and Frese. It is argued that there is no hint in Pitkin that the functionality of the server be taken over by the client and there would be no reason to do so since the servers are not general purpose computers, but special purpose servers (Br9). It is argued that it is improper to combine Pitkin with Adams and Frese since Pitkin specifically teaches that it is contrary to the purpose of his invention for a client computer to be directly associated with a single host computer (Br9).

Pitkin is only needed to show a cluster administration computer and Pitkin teaches control of a plurality of computers. Furthermore, a cluster administration computer, as broadly claimed, is considered to be taught by the RAS in Frese.

For the reasons stated above, we conclude that appellant has not shown any error in the rejection of claim 1. The rejection of claims 1-7, 9, 12, and 21 is sustained.

Group 2: claim 8

Claim 7 recites that the "cluster administration computer is operative to control at least one function of said network accessible computers" and claim 8, which depends on claim 7, recites "wherein said at least one function is to reset a selected network accessible computer."

The examiner found the features of 7 and 8 inherent in the combination (FR5). In the answer, the examiner finds that Adams teaches remotely controlling a PC and that it is known that a PC has a software reset, so "it is apparent that the reset function can be activated remotely" (EA8).

Claim 8 requires that it is the function of the cluster administration computer to restart a selected network accessible computer, not the client computer as in the examiner's rejection. We find no teaching of the reset limitation. The rejection of claim 8 is reversed.

Group 3: claims 10 and 11

Claim 10 recites that "said cluster administration computer serves to coordinate the sharing of at least one local resource by said network accessible computers."

The examiner found this limitation inherent in the combination (FR5). In the answer, the examiner finds that Adams discloses using PCs with Windows operating systems and that it is known that Windows permits sharing of a PC's storage devices, such as a shared drive or shared folders, and thus Adams has sharing of a storage device (EA8-9). The examiner concludes that it would have been obvious to manage the sharing of a PC's storage device because it would have enabled sharing and transferring of information (EA9).

The examiner's reasoning does not address the sharing of a local resource among a plurality of network accessible computers. Although we agree with the examiner that Adams implies a plurality of network accessible computers, it does not suggest sharing a resource, much less that the sharing is controlled by a cluster administration computer. Frese discloses a plurality of network accessible computers and a RAS which is considered to correspond to a cluster administration computer but does not suggest sharing a local resource. Pitkin, which the examiner relies on for the cluster administration computer, does not suggest that the various servers share a local resource. The rejection of claim 10 and its dependent claim 11 is reversed.

Group 4: claims 13 and 18

Method claim 13 has four steps: (1) a cluster administration computer receiving a request for a host computer from a client computer; (2) the cluster administration computer determining a suitable host computer; (3) the cluster administration computer informing the client computer of the network address of the suitable host computer; and (4) the cluster administration computer monitoring the functionality of a plurality of network accessible computers. We interpret the limitation "wherein the relationship of said host computer to said client computer is to be such that ... can be viewed by said client computer" as a statement of intended use that does not positively limit

claim 13. The statement about what the relationship "is to be" is a statement of intended use about what is intended once the client is associated with the host. Claim 13 is directed to the method of providing access to host computers by client computers, not what happens after the client has access.

Appellant essentially reiterates the arguments made with respect to claim 1.

The examiner finds that Adams teaches a host computer acting as a "virtual machine" and that providing the network address of the computer to be controlled is an inherent step for one computer to be able to connect to another computer (EA9).

Frese discloses that the RAS 20 is used to launch an application program in response to a request from user system 16 (col. 6, lines 46-49). Frese discloses (col. 8, lines 16-25):

The application programs which RAS 20 launches may be launched on the same computer implementing RAS 20 or RAS 20 may be coupled to a plurality of computers which may be used to launch one or more application programs. Use of a plurality of computers for launching application programs 22 is preferred as each computer may implement a different operating system environment so that a user may select an application program which executes under an operating system similar to the one on the user's system.

The RAS (remote application server), which is coupled to a plurality of computers, is considered to correspond to a cluster administration computer. The RAS receives a request from a client for an application and, therefore, for a host computer to run the application. The RAS determines a suitable host computer

based, for example, on the operating system environment. The client must inherently be informed of the host computer's network address, and vice versa, so that the computers can communicate. The RAS must inherently monitor the functionality of the plurality of computers so that it knows which ones are available, where "functionality" does not require monitoring every aspect of functionality. Adams is still applied in combination with Frese, which teaches viewing image information generated by the host computer on a client computer (an intended use limitation also inherently taught by Frese), and with Pitkin, which teaches the details of monitoring a plurality of network computers. For these reasons, the rejection of claims 13 and 18 is sustained.

Group 5: claim 14

Claim 14 recites that "wherein determining a suitable host computer includes receiving the desired requirements for a host computer from said client computer, and comparing said desired requirements to the characteristics of available host computers on said computer network."

Appellant argues that in Adams a user connects to a host, suitable or not (BR14). It is argued that with Frese, the user is testing an evaluation application program and, as such, the concern with suitability with the host machine is moot (Br14). It is argued that with Pitkin the user does not specify requirements at all (Br14). Appellant argues that the user

should be able to specify a network accessible computer that is compatible with his machine and operating system (Br14).

The examiner finds that the "desired service" in Pitkin is a type of "desired requirement for a host," as claimed (EA9-10).

The simpler answer is that Frese expressly discloses this limitation at column 8, lines 16-25. The rejection of claim 14 is sustained.

Group 6: claim 22

Claim 4 recites a TCP/IP protocol network, e.g., the Internet. Claim 22, which depends on claim 4 recites that the "cluster administration computer is operative to create a list of available network accessible computers."

Appellant argues that none of the cited prior art teaches a cluster administration computer for a plurality of network accessible computer (Br14). It is argued that there is no teaching for a user to go to a cluster administration computer in order to obtain a list of available network accessible computers which can server as "virtual machines" for the user (Br14). It is stated that the "broker" in Pitkin which designates one or more servers that can perform a certain service for a user is far different from the creation of a list of network accessible computers from which a user can choose (Br14-15).

In the final rejection, the examiner found this limitation inherent in the combination (FR5). In the answer, the examiner

finds that Pitkin teaches maintaining a list of available servers that can provide a particular service and that the combination would maintain a list in order to match a request for a remote control session with a computer (EA10).

Claim 22 only requires creating a list of available network accessible computers, not what is done with the list. It does not require the user to be able to select from the list as argued by appellant. Frese discloses that "[u]se of a plurality of computers for launching application programs 22 is preferred as each computer may implement a different operating system environment so that a user may select an application program which executes under an operating system similar to the one on the user's system" (col. 8, lines 20-25). This suggests maintaining a list of computers implementing different operating systems from which the users may select computers that are available and compatible. In addition, we agree that maintaining the lists in Pitkin meets the broad limitation of claim 22. The rejection of claim 22 is sustained.

Claims 15-17 -- Adams, Frese, Pitkin, and Clark

Group 1: claim 15

Claim 15 depends on claim 14 and recites the further step of "loading a personal state of a client using said client computer into said network accessible computer that will serve as said suitable host computer."

The examiner finds that Clark teaches saving and loading program state information and user configuration data before starting the remote control session at page 734, column 2 (FR6).

Appellant argues that Clark in no way saves the personal state of a client's "virtual machine" so that when the user once again takes over the functionality of a network accessible computer, it will be in essentially the same state as when he last used it (Br15). It is argued that "Clark in no way teaches the saving of a personal state of a remotely controlled computer system such that a client can repeatedly access a virtual machine as if it were his own personal computer" (Br15).

The examiner finds that Clark teaches saving state information of a process belonging to a user so that it can be loaded onto another remote computer and restarted (EA10).

There is no support in claim 15 for appellant's arguments. Claim 15 says nothing about saving the state at the host computer and reloading that state--it only recites loading a personal state of client. Clark teaches a Distributed Automated Workload balancinG System (DAWGS) that "allows users to send programs to remote machines for execution" (page 632). Special sections of code "allow DAWGS to properly set up an execution environment for the process so that the process is unaware of the fact that it is running on a remote machine" (page 632). The front-end process "passes important user-environment information to the daemon

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process such as the user's terminal type and the user's current window size, the user's uid, and the value of all currently-defined environment variables" (page 734). The user-environment information sent to the remote (host) computer allows the process to be unaware it is running on a remote machine and corresponds to a "personal state of a client." The rejection of claim 15 is sustained.

Group 2: claims 16 and 17

Claim 16 recites "whereby monitoring the functionality of a plurality of network accessible computers includes resetting a network accessible computer if it is determined that it is not functioning properly."

The rejection of claim 16 is reversed for the reasons discussed in connection with claim 8 (Group 2). The resetting is performed by the cluster administration computer, not the client computer as in the examiner's rejection.

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CONCLUSION

The rejections of claims 1-7, 9, 12-15, 18, 21, and 22 are sustained.

The rejections of claims 8, 10, 11, 16, and 17 are reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

Lee E. Barrett
LEE E. BARRETT
Administrative Patent Judge

Joseph Ruggiero
JOSEPH F. RUGGIERO
Administrative Patent Judge

Anita Pellman Gross
ANITA PELLMAN GROSS
Administrative Patent Judge

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LOS ALTOS, CA 94023-1639